

REMARKS

The claims were amended in accordance with the amendments above. All of the amendments are fully supported by the specification, claims, and figures as originally filed. No new matter is believed or intended to be involved.

The Final Office Action mailed March 20, 2008 ("Final Office Action") objected to the specification, and requested that the applicants add an explicit definition for "computer readable media." In response, the applicants have defined "computer readable media" to comprise "material on which data are or may be recorded, such as plain paper, paper tapes, punched cards, magnetic tapes, magnetic disks, or optical disks." No new matter is added by this amendment, as is demonstrated by the fact that it is taken verbatim from the definition of a "medium" which is provided by Federal Standard 1037C, published August 7, 1996 (available at <http://www.its.bldrdoc.gov/fs-1037/>). Therefore, the applicants request that the objection to the specification be reconsidered and withdrawn.

The Final Office Action also rejected the pending claims as either anticipated by U.S. 6,877,095 ("Allen"), or obvious over Allen when combined with U.S. 5,434,994 ("Shaheen"), U.S. 5,951,694 ("Choquier") or information which was allegedly "well known" at the time of the invention. However, as set forth herein, each of the pending claims includes limitations which clearly differentiate the claims from the art of record. To enhance the clarity of this response, the applicants have divided the arguments differentiating the pending claims from the art of record into two sections: a summary, and a detailed analysis. The summary section is intended to present arguments as to why the pending rejections should be withdrawn in a form which is more manageable than the more lengthy discussion in the detailed analysis section. Not all arguments presented in the summary section are applicable to all pending claims, and not all arguments regarding the pending claims are presented in the summary section. The detailed analysis section explains why, on a claim by claim basis, the pending rejections should be withdrawn.

Summary

The pending claims include at least the following features which are clearly not taught or suggested in the art of record:

- 1) the use of multi-threaded processing, using specific threads recited in the claims, for maintaining session state information;¹
- 2) specific techniques, including transmitting specific commands, for storing, creating and updating session states;
- 3) tying heartbeat messages to a request-response cycle, rather than simply sending out heartbeats as allegedly taught in the cited art; and
- 4) using a session state ID which identifies the server which originally created the session state, *and* indicates where the session state is stored.²

Even without considering specific passages, it is clear that features such as those described above are not taught or suggested by Allen, because Allen is simply not focused on the details of how session state information can be maintained among a plurality of servers.

Allen Teaches Away from the Currently Claimed Invention

Instead, Allen describes techniques for validating a user's login state and determining whether a user's session should expire *without* storing session state information.³ Allen only discusses maintaining session state information by way of providing a high level background to show why techniques which do not store session state information are superior.⁴ Details of how session state information could be maintained would be out of place in such a high level description, and are clearly absent from the high level description of Allen.

Improper Reliance on Official Notice

The Final Office Action also featured an improper overreliance on official notice when making rejections. Of the rejections in the Final Office Action, 31 rejections relied on undocumented assertions that certain aspects in the claims were "well known" at the time of the applicants' invention. This is more than five times as many rejections as relied on Shaheen, and more than *fifteen* times as many rejections as relied on Choquier, the Final Office Action's two

¹ No new matter is introduced by amendments which emphasize these features, as multi-threaded processing for maintaining session state information was described in at least claim 19, and lines 23 of page 45 through line 19 of page 48 of the application as originally filed.

² No new matter is introduced by amendments which emphasize these features, as such a session state ID was described in at least page 35, lines 21-23, and figure 11A and the accompanying description in the application as originally filed.

³ Allen, abstract.

secondary references. This is improper. Indeed, the MPEP states that, as a general matter, reliance on undocumented allegations regarding what was “well known” in the art should be avoided in a Final Office Action.⁵ Accordingly, the Applicants request that all rejections relying on allegations of what was “well known” in the art be reconsidered, and that the Examiner withdraw, or provide supporting documentation for, allegations regarding the knowledge of one of ordinary skill in the art.

Detailed Analysis

The Multi-Threading and Session State Storage Techniques of Claim 57 are Absent From the Art of Record

The first independent claim, claim 57, can be distinguished from the art of record based at least on the specific techniques it recites for multi-threaded processing, and storing session states. For multi-threaded processing, claim 57 explicitly recites the existence of two threads on the first server: a command publisher thread, and a server interface thread. Claim 57 also explicitly recites specific functions performed by those threads (storing a first session state for the server interface thread, and transmitting data related to the first session state for the command publisher thread), and that the command publisher thread is actually coupled to the server interface thread. For storing session states, claim 57 explicitly recites that the first session state is stored locally on a first server in a fact array by the server interface thread. Claim 57 also explicitly recites that the first server transmits a command to at least two other servers in a server group, and that that command, when executed, causes the executing server to locally store the first session state.

Allen Does Not Include Any Details About How Session State Information is Stored or Made Accessible to Multiple Servers in a Server Group

In the Final Office Action, claim 57 was rejected as anticipated by Allen,⁶ a rejection which should be reconsidered and withdrawn. The sections of Allen which were cited against claim 57⁷ disclose that e-commerce applications can track session state information of a user in a

⁴ Indeed, the applicants note that the only sections of Allen cited in the Final Office Action are found in the “Background” portion of that reference.

⁵ MPEP 2144.03 (“While ‘official notice’ may be relied on, *these circumstances should be rare* when an application is under final rejection or action under 37 CFR 1.113.”) (emphasis added).

⁶ Final Office Action at 3.

⁷ Allen, col. 2, ll. 57-60; col. 3, ll. 52-57; col. 4, ll. 1-6; and figure 1.

variety of ways,⁸ one of which is to store session state information on the servers used for electronic commerce.⁹ Those sections also state that, if session state is stored on a web server, each server in a server group must have access to the session state information.¹⁰ However, those sections do not include any details about how session state information is stored, or how it is made accessible to multiple servers in a server group. This is not surprising, since the cited sections of Allen are all taken from the “Background” of that reference, a section which is not intended to (and does not) provide details of the type recited in claim 57. In situations where a reference discloses a goal or requirement, later developed techniques for achieving that goal or requirement will not be rendered unpatentable by that reference.¹¹ In this case, Allen’s background discloses (at most) a broad goal or requirement for storing session state on a server: each server in the server group must have access to that state. Given that Allen discloses no details as to how that goal can be achieved, Allen cannot be treated as teaching or suggesting the specific multi-threading and session state storage techniques recited in claim 57. Accordingly, the Final Office Action’s rejection of claim 57 should be reconsidered and withdrawn.

*The Rejections of Claims 58-85 Should be Withdrawn Because
Those Claims Depend From Claim 57*

Because claims 58-85 depend from claim 57, the rejections of claims 58-85 should be withdrawn for at least the reasons given above regarding claim 57. As set forth above, claim 57 includes at least two features which are neither taught nor suggested in Allen. Additionally, the Final Office Action did not identify any reference which could address the shortcomings of Allen noted above. Thus, because claim 57 is neither anticipated by, nor obvious over, any of the art of

⁸ Allen, col. 2, ll. 57-60 (“FIG. 1 shows an example of a typical e-commerce network configuration 100. In order to track the session state information of the user, a typical Internet configuration includes three session-state storage tiers 102, 104, and 106.”).

⁹ Allen, col. 3, ll. 52-57 (“Tier B (Storing on the Web server): To eliminate the need to encrypt and decrypt the session-state information with each request, the Web server 120 may simply store all session-state information at the Web server itself. The information is stored within Tier B 104. This is the easiest session-state information storage solution.”).

¹⁰ Allen, col. 4, ll. 1-6 (“If session-state information stored at Tier B (on the Web servers), then each server must have access to the session-state information of each currently logged-in user. This is because any server may receive a request from any server at any time. Therefore, the servers must be able to communicate with each other and share session-state information.”).

¹¹ The Supreme Court explicitly rejected this test in *Graham v. John Deere*, 383 U.S. 1 (1965) (“the Eighth Circuit held, in the case at bar, that there was no new result in the patented combination and that the patent was, therefore, not valid ... we have determined that neither Circuit applied the correct test.”). Indeed, a disclosure of the existence of a goal without any disclosure of how that goal might be achieved can actually be used as evidence in support of

record, claims 58-85 which incorporate claim 57 by reference are also not anticipated by, or obvious over, that art. Accordingly, for the reasons given regarding claim 57, the rejections of claims 58-85 should be reconsidered and withdrawn.

*Claim 59 Recites Further Details Regarding Multi-Threading
Which are Absent From the Art of Record*

In addition to incorporating by reference the novel limitations of claim 57, claim 59 also recites further limitations regarding multi-threading which are not taught or suggested in the art of record. Specifically, claim 59 recites that an update command transmitted from a second server is received by at least two other servers via subscriber threads executing on those servers. Claim 59 also recites that the subscriber threads are actually coupled to fact arrays which are stored locally on the servers which receive the update command. The only art of record cited against claim 59 was the “Background” of Allen. As discussed previously, the cited sections of that reference does not disclose multi-threading of any kind, let alone teaching or suggesting additional detail regarding multi-threaded processing recited in claim 59. Accordingly, even if the Examiner does not withdraw the pending rejections based on the arguments set forth above regarding claim 57, the rejection of claim 59 should still be reconsidered and withdrawn based on the additional limitations which that claim recites.

*The Rejection of Claim 59 Improperly Relied on Unsupported
Allegations of What was Well Known at the Time of the Invention*

The rejection of claim 59 is also flawed because it improperly relied on official notice to supply specific teachings which are admittedly absent from the art of record. As a general proposition, “specific knowledge of the prior art must *always* be supported by citation to some reference work recognized as standard in the pertinent art.”¹² In rejecting claim 59, the Final Office Action included an assertion of specific knowledge of the prior art: that “an update including an update command was well known in the art at the time of the present invention.”¹³ However, the Final Office Action did not include any citation to a reference work recognized as standard in the pertinent art in support of that statement. Indeed, the Final Office Action’s only

an invention’s patentability. See, e.g., *Graham v. John Deere*, 383 U.S. 1 (1965) (discussing the relevance of “long felt but unsolved needs” to the patentability of an invention).

¹² MPEP § 2144.03 citing *In re Ahlert*, 424 F.2d 1088 (CCPA 1970).

potential support for its assertion about the prior art was the statement that “Allen also discloses the servers must be able to communicate with each other and share session-state information.”¹⁴ However, this is not support for the proposition that “an update including an update command was well known,” because neither Allen (nor any other art of record) teaches that communication requires updates to include actual update commands. Indeed, as shown by the definition provided by a general purpose dictionary, an “update” can simply be an up-to-date version of some information,¹⁵ while a “command” actually instructs a device to take some action.¹⁶ Therefore, the Final Office Action’s support for taking official notice is insufficient for the additional reason that, when relying on a statement of supposedly common knowledge, “[t]he examiner *must* provide specific factual findings predicated on *sound technical and scientific reasoning* to support his or her conclusion.”¹⁷ Accordingly, the applicants request that the assertion that “an update including an update command was well known” be either supported by adequate evidence, or withdrawn.

Claims 61 and 62 Recite Specific Techniques for Creating an Updated Session State Which Absent from the Art of Record

In addition to the limitations incorporated by reference from claim 57, claims 61 and 62 explicitly recite further novel limitations regarding the creation of an updated session state. Claim 61 recites a technique for creating an updated session state which comprises modifying the session state which had been previously stored as recited in the method for claim 57. Claim 62 recites a technique for creating an updated session state which comprises actually deleting the previously stored session state, and then adding an updated session state to replace it. The Final Office Action rejected those claims based on the following statement from Allen: “[t]he copies of the users’ session-state information are updated whenever that information changes.”¹⁸ However, that section of Allen cannot properly be used as the basis for rejecting claims 61 and 62, because it does not disclose *how* copies of a user’s session state information are updated, whether by modifying a previously stored session state (as recited in claim 61), by deleting a previously stored session state and creating an updated session state (as recited in claim 62) or

¹³ Final Office Action at 8.

¹⁴ Final Office Action at 8.

¹⁵ See, e.g., Webster’s Ninth New Collegiate Dictionary (1986) at 1296 (providing the definitions of “current information for updating something” and “an up-to-date version account, or report”).

¹⁶ See, e.g., *id.* at 264 (providing definitions of “an order given” and “an electrical signal that actuates a device.”).

¹⁷ MPEP §2144.03 citing *In re Soli*, 317 F.2d 941 (CCPA 1963) (emphasis added).

through some other method entirely. Accordingly, even if the Examiner does not withdraw the pending rejections based on the arguments set forth above regarding claim 57, the rejections of claims 61 and 62 should still be reconsidered and withdrawn based on the additional limitations which those claims recite.

The Rejection of Claim 64 Improperly Relied on Unsupported Allegations of What was Well Known at the Time of the Invention

The rejection of claim 64 should be withdrawn because it improperly relied on official notice to supply specific teachings which are admittedly absent from the art of record. As a general proposition, “specific knowledge of the prior art must *always* be supported by citation to some reference work recognized as standard in the pertinent art.”¹⁹ In rejecting claim 64, the Final Office Action included an assertion of specific knowledge of the prior art: that “an update including a create command was well known in the art at the time of the present invention.”²⁰ However, the Final Office Action did not include any citation to a reference work recognized as standard in the pertinent art in support of that statement. Indeed, the Final Office Action’s only potential support for its assertion about the prior art was the statement that “Allen also discloses the servers must be able to communicate with each other and share session-state information.”²¹ However, this is not support for the proposition that “an update including a create command was well known,” because neither Allen (nor any other art of record) teaches that communication requires updates to include create commands. Therefore, the Final Office Action’s support for taking official notice is insufficient for the additional reason that, when relying on a statement of supposedly common knowledge, “[t]he examiner *must* provide specific factual findings predicated on *sound technical and scientific reasoning* to support his or her conclusion.”²² Accordingly, the applicants request that the assertion that “an update including a create command was well known” be either supported by adequate evidence, or withdrawn.

¹⁸ Final Office Action at 5, citing Allen, col. 4, ll. 12-13.

¹⁹ MPEP § 2144.03 citing *In re Ahlert*, 424 F.2d 1088 (CCPA 1970).

²⁰ Final Office Action at 10.

²¹ Final Office Action at 10.

²² MPEP §2144.03 citing *In re Soli*, 317 F.2d 941 (CCPA 1963) (emphasis added).

Claim 73 Includes Limitations Tying Heartbeats to a Request-Response Cycle Which were not Considered in the Final Office Action

Claim 73 recites a method for maintaining a session state in a plurality of servers which includes transmitting a heartbeat request, and receiving a heartbeat *in response to* the heartbeat request. In rejecting claim 73, the Final Office Action stated that “Shaheen discloses transmitting/broadcasting a heartbeat message” and that “it would have been obvious to one of ordinary skill in the art to modify the teachings of Allen to expressly disclose transmitting/broadcasting a heartbeat message to the servers of the server group/farm.”²³ However, even assuming that that statement is true, the applicants note that it simply does not address whether it would have been obvious to transmit, not just a heartbeat, but an actual heartbeat *request*, then to receive the heartbeat *in response to* the previously transmitted heartbeat request. Further, this omission cannot be corrected by reference to the cited art, because, even if Shaheen does teach transmitting a heartbeat message, there is no teaching or suggestion anywhere in Shaheen that that message is (or can be) transmitted in response to a request. Additionally, there is no teaching or suggestion to modify the heartbeat message of Shaheen so that it is sent in response to a request, because, according to Shaheen, server failure can be detected simply by the absence of a heartbeat pulse, and no heartbeat request is required.²⁴ Accordingly, since the rejection of claim 73 did *not* show that all limitations in that claim were taught or suggested in the art of record the rejection of that claim should be reconsidered and withdrawn, even if the arguments made above regarding claim 57 are not found to be persuasive.

The Multi-Threading Limitations Recited in Claim 86 are Absent from the Art of Record

Claim 86, like claim 57, can be distinguished from the art of record based on the specific multi-threading techniques it recites. Specifically, claim 86 recites the use of two different

²³ Final Office Action at 21-22. The applicants note that the Final Office Action seems to have conflated the terms “server group” and “server farm” and the terms “transmitting” and “broadcasting.” So as to avoid detracting focus on the arguments in the text, the applicants are not explicitly addressing the Final Office Action’s treatment of these different terms as synonymous. However, the applicants submit that this conflation is assumedly improper, since it is presumed that “different terms in the claims connotes different meanings.” *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F. 3d 1324, 1333 n.3 (Fed. Cir. 2006) quoting *CAE Screenplates, Inc. v. Heinrich Fiedler GmbH & Co. KG*, 224 F.3d 1308, 1317 (Fed. Cir. 2000).

threads, a fact publisher thread and a subscriber thread, which execute on a single server to maintain session state information. Claim 86 also recites specific functions for those threads, with the fact publisher thread being used for sending session state information to each server in a plurality of servers, while the subscriber thread is used for receiving updating information for the session state which is sent by other servers. As was the case with the rejection of claim 57, the rejection of claim 86 was based purely on the high level description from the “Background” section of Allen.²⁵ As set forth above with regard to claim 57, that high level description includes no detail whatsoever on how maintaining session state information could actually be accomplished. Accordingly, the applicants submit that it is impossible for claim 86 (or any claim reciting the multi-threading features described above) to be properly rejected over Allen. Thus, the applicants request that the rejection of claim 86 based on Allen be reconsidered and withdrawn.

*The Rejections of Claims 87-111 Should be Withdrawn Because
Those Claims Depend From Claim 86*

Because claims 87-111 depend from claim 86, the rejections of claims 87-111 should be withdrawn for at least the reasons given above regarding claim 85. As set forth above, claim 86 includes multi-threading features which are neither taught nor suggested in Allen. Additionally, the Final Office Action did not identify any reference which could address the shortcomings of Allen noted above. Thus, because Claim 86 is neither anticipated by, nor obvious over, any of the art of record, claims 87-111 which incorporate claim 86 by reference are also not anticipated by, or obvious over, that art. Accordingly, for the reasons given regarding claim 86, the rejections of claims 87-111 should be reconsidered and withdrawn.

*The Rejection of Claim 87 Improperly Relied on Unsupported
Allegations of What was Well Known at the Time of the Invention*

Like the rejection of claim 59, the rejection of claim 87 relied on the unsupported assertion that “an update including a create command was well known in the art at the time of the present invention.”²⁶ As set forth above regarding claim 59, such an unsupported assertion is

²⁴ Shaheen col. 5, l. 62 – col. 6, l. 2.

²⁵ Final Office Action, pages 12-14.

²⁶ Final Office Action at 15.

improper. Accordingly, the rejection of claim 87 should be withdrawn for at least the additional reasons given above regarding claim 59.

Claims 91 and 92 Recite Specific Techniques for Creating an Updated Session State Which Absent from the Art of Record

In addition to the limitations incorporated by reference from claim 86, claims 91 and 92 explicitly recite further novel limitations regarding the creation of an updated session state. Claim 91 recites a technique for creating an updated session state which comprises modifying the session state which had been previously stored as recited in the method for claim 86. Claim 92 recites a technique for creating an updated session state which comprises actually deleting the previously stored session state, and then adding an updated session state to replace it. The Final Office Action rejected those claims based on the following statement from Allen: “[t]he copies of the users’ session-state information are updated whenever that information changes.”²⁷ However, that section of Allen cannot properly be used as the basis for rejecting claims 91 and 92, because it does not disclose *how* copies of a user’s session state information are updated, whether by modifying a previously stored session state (as recited in claim 91), by deleting a previously stored session state and creating an updated session state (as recited in claim 92) or through some other method entirely. Accordingly, even if the Examiner does not withdraw the pending rejections based on the arguments set forth above regarding claim 86, the rejections of claims 91 and 92 should still be reconsidered and withdrawn based on the additional limitations which those claims recite.

Claim 99 Includes Limitations Tying Heartbeats to a Request-Response Cycle Which were not Considered in the Final Office Action

Like claim 73, claim 99 ties a heartbeat to a request-response cycle. However, as was the case with claim 73, the rejection of claim 99 did not address this request-response requirement *at all*. Indeed, the Final Office Action did not include a separate treatment of claim 99, and instead simply asserted that the rejection of claim 73 applied to that claim as well.²⁸ Accordingly, for

²⁷ Final Office Action at 16, citing Allen, col. 4, ll. 12-13.

²⁸ Final Office Action at 21.

the reasons given above with regard to claim 73, the rejection of claim 99 is insufficient and should be withdrawn.

*Use of the Specific Type of Session State ID Recited in Claim 101
is Absent From the Art of Record*

Claim 101 recites specific details about a session state ID received in maintaining session state information which are not taught or suggested in the art of record. Specifically, claim 101 recites that the session state ID comprises two different aspects, a first identifier and a second identifier. Claim 101 also recites information about the nature of those identifiers. The first identifier from the session state ID identifies the server which created the session state.²⁹ The second identifier comprises an indication of a location of the session state in a fact array stored locally on the server which received the session state ID.³⁰ In rejecting claim 101, the only citation to the art of record was to a portion of the “Background” from Allen.³¹ However, the only type of identification mentioned in the cited sections of Allen is the identification of a user, not the identification of a session state.³² Such an identification is clearly different from the session state ID recited in claim 101 for at least the reason that the subject identified by a user ID (a user) is different from the subject identified by a session state ID (a session state). Further, even if identification of a user were treated as suggesting a session state ID, there is no indication anywhere in Allen that such an identification might comprise the first and second identifiers specified by claim 101. Accordingly, based on the limitations regarding a session state ID recited in claim 101, the rejection of that claim should be reconsidered and withdrawn even if the arguments made above regarding claim 86 are not found to be persuasive

*The “Grapevine Protocol” Recited in Claim 112 is Not Taught or
Suggested in the Art of Record*

Claim 112 recites a “grapevine protocol” which clearly distinguishes that claim from the art of record. As recited in claim 112, the “grapevine protocol” is implemented in the form of instructions which configure each of a plurality of servers to perform specific tasks. Claim 112

²⁹ Claim 101 identifies this as the “first server,” which claim 86 describes as the location where the first session state is created and broadcast from.

³⁰ Claim 101 identifies this as the “second server.”

³¹ Final Office Action at 19, citing Allen, col. 1, ll. 24-37; col. 4, ll. 1-13.

also specifically recites some of those tasks. For example, the “grapevine protocol” configures the servers to maintain a locally stored fact array which comprises a plurality of session states. The “grapevine protocol” also configures the servers to perform multi-threaded processing, using a fact publisher thread to transmit state information to the plurality of servers, and a subscriber thread to receive published session state information. As was the case with claims 57 and 86, claim 112 was rejected based purely on citations to the “Background” section of Allen.³³ However, as set forth above, the “Background” of Allen does not include details as to how session state information can be maintained, and clearly does not include any teaching or suggestion of multi-threaded processing or session state storage techniques such as are recited in claim 112 as part of the “grapevine protocol.” Accordingly, based on claim 112’s recitation of a “grapevine protocol,” and the specific aspects of the protocol set forth in that claim, the rejection of claim 112 should be reconsidered and withdrawn.

³² Allen, col. 1, ll. 24-26 (“Identification, validation, and authorization are main reasons for tracking a user’s session state information. *The mainframe identifies the user.*”) (emphasis added).

³³ Final Office Action at 7.

Conclusion

In light of the arguments made herein, it is respectfully submitted that the claims of the present application meet the requirements of patentability under 35 U.S.C. §§ 102 and 103. Accordingly, reconsideration and allowance of these claims are earnestly solicited. Additionally, the applicants submit that the arguments made herein do not constitute an exhaustive list of the novel limitations found in claims 57-112 which are not taught or suggested in the art of record. To the extent that the applicants have not addressed certain aspects of the present rejection, please do not construe the same as an admission as to the merits of the rejections. Indeed, the applicants reserve all rights with respect to arguments not explicitly raised herein. Further, the applicants state that, while certain characterizations were accepted for the purpose of making certain arguments, the applicants accepted those characterizations for the purpose of presenting those specific arguments only, and did not intend for those acceptances to be treated as concessions. The applicants encourage the Examiner to contact their representative, William Morriss at (513) 651-6915 or wmorriss@fbtlaw.com if further questions remain as to the patentability of any of the claims pending in this application.

The Commissioner for Patents is hereby authorized to charge any deficiency or credit any overpayment of fees to Frost Brown Todd LLC Deposit Account No. 06-2226.

Respectfully submitted,

Ahmed Gheith, et al.

By /William Morriss/

William Morriss, Reg. No. 60,477
Attorney for Applicant

FROST BROWN TODD LLC
2200 PNC Center
201 East Fifth Street
Cincinnati, Ohio 45202
(513) 651-6915